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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/859,542	05/18/2001	Shiuh-Bin Kao	KAOS3005/EM/6793	3481

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BACON & THOMAS, PLLC
625 SLATERS LANE
FOURTH FLOOR
ALEXANDRIA, VA 22314

EXAMINER

YENKE, BRIAN P

ART UNIT	PAPER NUMBER
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2614

DATE MAILED: 03/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/859,542

Applicant(s)

KAO ET AL.

Examiner

BRIAN P. YENKE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- 2a. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matono et al., US 6,344,857 in view of Liaw et al., US 6,593,934.

In considering claim 1,

a) the claimed performing a gamma compensation process on a video signal received by said PDP with respect to a first gamma is met where the received video television is gamma corrected to correct the gamma characteristic of the image transmitting side (col 1, line 24-27).

b) the claimed dividing said video signal into at least two segments based on a gray level thereof is met by gamma correction unit 1 which divides the received video signal into 8 segments comprised of two nodes (Fig 2) based in the brightness/gray level of the video signal (col 3, line 25-64).

However, Matono does not explicitly disclose performing a variety of anti-compensation processes in each respective segment. Matono discloses performing compensation based upon the linear gamma curve (dashed line Fig 2), the respective

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colors red, green and blue, are adjusted where each segment includes a start point (low level) and an end point (high level), where the signal (color) is adjusted from the start point to the end point.

Although, the use of different gamma voltages in relation to different gray levels is conventional in the art, the examiner nonetheless incorporates Liaw et al., which discloses an automatic gamma correction system for displays wherein the gamma reference voltage as well as the corresponding gray-scale value is adjustable. The adjustable gray-scale and gamma voltage provide the correction required to represent the transfer function of the destination gray scale and voltage required to drive the respective display, thereby providing a greater degree of freedom in the realization of the correction of gamma parameters (col 5, line 29-38).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Matono, which discloses receiving a conventionally gamma corrected video signal in order to perform further compensation/gamma correction on the video signal to cancel/account for the gamma characteristic of the image transmitting side in addition to correcting for the characteristic of the type of display (LCD, PDP or DMD), by performing a variety of anti-compensation on the video signal as done by Liaw, in order to drive a selected display with the correct gamma parameters.

In considering claim 2,

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The claimed wherein in said step c) a second gamma smaller than said first gamma is used in said anti compensation process with respect to said video signal in a range of a first gray level is met by Liaw (Fig 12).

In considering claim 3,

The claimed wherein said step c) a third gamma larger than said first gamma is used in said anti compensation process with respect to said video signal in a range of high gray level for increasing a gradient in said range of a second gray level, wherein said second gray level is higher than said first gray level is met Liaw (Fig 12).

2b. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matono et al., US 6,344,857, Liaw et al., US 6,593,934. in view of applicant's admitted prior art (AAIPA).

In considering claim 4,

The combination of Matono and Liaw does not specifically disclose the brightness equation as claimed; wherein said gamma compensation process has been performed on said video signal received by said PDP in a following equation:

brightness = $k1 \times (V_{input}/V_{max})^{\gamma}$, where $\gamma = 2.2$, $k1$ is a variable representing a gray level of a color television (TV), V_{input} is input voltage, and V_{max} is a maximum voltage for showing said maximum gray level of said color TV.

Matono does disclose that it is conventional that a received video signal must be gamma corrected to cancel the gamma characteristic for the image transmitting side. It is also noted by the examiner that conventionally received NTSC signal include gamma

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characteristics of 2.2, whereas in European countries the image transmitting side include gamma characteristics of 2.8. Thus the use of 2.2 is conventionally used in the US in transmitting an NTSC signal, as also noted by the applicant.

Thus the examiner incorporates the applicant's admitted prior art, (page 1, line 16) which discloses the conventional brightness equation which is used to perform gamma correction on a video signal on the transmission side.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify/utilize in Matono and Liaw, which discloses receiving a conventionally gamma corrected video signal in order to perform further compensation/gamma correction on the video signal to cancel/account for the gamma characteristic of the image transmitting side in addition to correcting for the characteristic of the type of display (LCD, PDP or DMD) using a variety of anticomensation processes, by using the conventional brightness equation where $\gamma = 2.2$ to cancel the effect of the conventional gamma characteristic on the image transmitting side.

In considering claims 5-7,

The combination of Matono and Liaw do not specifically disclose, the claimed wherein a fourth gamma smaller than 2.2 is used in said anti compensation process with respect to said video signal in said range of low gray level

As illustrated by applicant's admitted prior art Figs 1a/b/c, the applicant illustrates that a conventional transmitted signal in the US (NTSC gamma = .45 which is $1/(2.2)$)

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has the characteristic curve as shown in Fig 1a, a typical CRT corrects for this transmitted signal with a $1/(2.2)$ characteristic by using conventional CRT compensation (i.e. $\gamma=2.2$ using equation 1) as shown in Fig 1b. The result of the transmitted signal having a $1/(2.2)$ gamma characteristic and the compensated CRT ($\gamma=2.2$ using equation 1) is a linear relationship as shown in Fig 1c which is the 2.2 gamma curve.

Since Matono discloses that a conventional signal must be corrected for as done when using a CRT for display, but the signal must be additionally corrected/compensated for non-CRT displays, which is the invention disclosed by Matono. Thus one can conclude that Matono (Fig 2) which includes a linear slope (dashed line) is the resultant curve as shown in applicant's Fig 1c.

Thus in the event of a display other than a CRT (where a CRT is conventionally corrected using 2.2 gamma), i.e. LCD, PDP, DMD the gamma characteristic of the transmitted signal (2.2) must be corrected for and in addition to the conventional 2.2 correction, the gamma characteristic of the non-CRT display device (i.e. LCD, PDP, DMD) must also be corrected for, where the values of gamma are may vary above, below or equal to the conventional 2.2 correction.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure—please refer to newly cited references on attached PTO-892.

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4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Yenke whose telephone number is (703) 305-9871. The examiner work schedule is Monday-Thursday, 0730-1830 hrs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, John W. Miller, can be reached at (703)305-4795.

Any response to this action should be mailed to:


Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703)305-HELP.


BRIAN P. YENKE
Primary Examiner
Art Unit 2614



B.P.Y

11 March 2004